

WHAT IS CLAIMED IS:

1. A video encoding method of implementing interframe prediction between a frame and another frame, said video encoding method comprising:

5        outputting a maximum delay time that can be made by backward prediction.

2. A video encoding method comprising:

      an input step of effecting input of a frame as a target for encoding;

10        an encoding step of encoding the frame by a predetermined method; and

      a maximum delay time calculating step of calculating a maximum delay time of the frame from a display time of the frame, an encoding time, and a delay time that is incurred by backward prediction.

15        3. A video decoding method of implementing interframe prediction between a frame and another frame, said video decoding method comprising:

20        effecting input of a maximum delay time that can be made by backward prediction.

4. A video decoding method comprising:

25        an input step of effecting input of image data containing encoded data of a frame encoded by a predetermined method, a decoding time of the frame, and a maximum delay time;

      a decoding step of decoding the encoded data to

generate a regenerated image; and

an image output time calculating step of calculating an output time for display of the frame, based on the decoding time and the maximum delay time.

5           5. A video encoding apparatus for implementing interframe prediction between a frame and another frame, said video encoding apparatus being configured to:

10           output a maximum delay time that is incurred by backward prediction.

6. The video encoding apparatus according to Claim 5, wherein said maximum delay time is defined as a time difference between an occurrence time of a frame to be subjected to backward interframe prediction, and  
15           an occurrence time of a temporally last subsequent frame that can be used as a reference frame in backward prediction.

7. The video encoding apparatus according to Claim 5, wherein the maximum delay time is outputted as  
20           information to be applied to entire encoded data.

8. The video encoding apparatus according to Claim 5, wherein the maximum delay time is outputted as information to be applied to each frame.

9. The video encoding apparatus according to  
25           Claim 5, wherein the maximum delay time is optionally outputted as information to be applied to a frame for

which the maximum delay time is transmitted and to each temporally subsequent frame after said frame.

10. A video encoding apparatus comprising:

input means for effecting input of a frame as a target for encoding;

encoding means for encoding the frame by a predetermined method; and

maximum delay time calculating means for calculating a maximum delay time of the frame from a display time of the frame, an encoding time, and a delay time that is incurred by backward prediction.

11. The video encoding apparatus according to Claim 10, wherein said maximum delay time is defined as a time difference between an occurrence time of a frame to be subjected to backward interframe prediction, and an occurrence time of a temporally last subsequent frame that can be used as a reference frame in backward prediction.

12. The video encoding apparatus according to Claim 10, wherein the maximum delay time is outputted as information to be applied to entire encoded data.

13. The video encoding apparatus according to Claim 10, wherein the maximum delay time is outputted as information to be applied to each frame.

14. The video encoding apparatus according to Claim 10, wherein the maximum delay time is optionally

outputted as information to be applied to a frame for which the maximum delay time is transmitted and to each temporally subsequent frame after said frame.

5        15. A video decoding apparatus for implementing interframe prediction between a frame and another frame, said video decoding apparatus being configured to:

effect input of a maximum delay time that is incurred by backward prediction.

10        16. The video decoding apparatus according to Claim 15, wherein the maximum delay time is defined as a time difference between a decoding time of a frame without reversal of orders of decoding times and output times with respect to any other frame, and a decoded  
15        image output time correlated with said frame.

17. The video decoding apparatus according to Claim 15, wherein the maximum delay time is entered as information to be applied to entire encoded data.

20        18. The video decoding apparatus according to Claim 15, wherein the maximum delay time is entered as information to be applied to each frame.

25        19. The video decoding apparatus according to Claim 15, wherein the maximum delay time is optionally entered as information to be applied to a frame for which the maximum delay time is transmitted and to each temporally subsequent frame after said frame.

20. A video decoding apparatus comprising:

input means for effecting input of image data containing encoded data of a frame encoded by a predetermined method, a decoding time of the frame, and  
5 a maximum delay time;

decoding means for decoding the encoded data to generate a regenerated image; and

image output time calculating means for calculating an output time for display of the frame, based on the decoding time and the maximum delay time.  
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21. The video decoding apparatus according to Claim 20, wherein the maximum delay time is defined as a time difference between a decoding time of a frame without reversal of orders of decoding times and output  
15 times with respect to any other frame, and a decoded image output time correlated with said frame.

22. The video decoding apparatus according to Claim 20, wherein the maximum delay time is entered as information to be applied to entire encoded data.

20 23. The video decoding apparatus according to Claim 20, wherein the maximum delay time is entered as information to be applied to each frame.

24. The video decoding apparatus according to Claim 20, wherein the maximum delay time is optionally  
25 entered as information to be applied to a frame for which the maximum delay time is transmitted and to each

temporally subsequent frame after said frame.

25. A video encoding program for letting a computer to execute video encoding of implementing interframe prediction between a frame and another frame, said video encoding program letting the computer  
5 to execute:

a process of outputting a maximum delay time that is incurred by backward prediction.

26. A video encoding program for letting a  
10 computer to execute:

an input process of effecting input of a frame as a target for encoding;

an encoding process of encoding the frame by a predetermined method; and

15 a maximum delay time calculating process of calculating a maximum delay time of the frame from a display time of the frame, an encoding time, and a delay time that is incurred by backward prediction.

27. A video decoding program for letting a  
20 computer to execute video decoding of implementing interframe prediction between a frame and another frame, said video decoding program letting the computer to execute:

25 a process of effecting input of a maximum delay time that can be made by backward prediction.

28. A video decoding program for letting a

computer to execute:

an input process of effecting input of image data containing encoded data of a frame encoded by a predetermined method, a decoding time of the frame, and  
5 a maximum delay time;

a decoding process of decoding the encoded data to generate a regenerated image; and

an image output time calculating process of calculating an output time for display of the frame,  
10 based on the decoding time and the maximum delay time.